DOCUMENT RESUME

ED 305 968 JC 890 191

TITLE A Comprehensive Review of Selected Business Programs in Community Colleges and Area Vocational-Technical Centers. Program Review Report.

INSTITUTION Florida State Board of Community Colleges, Tallahassee.; Florida State Dept. of Education, Tallahassee. Div. of Vocational, Adult, and Community Education.

PUB DATE 22 Nov 88
NOTE 80p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Articulation (Education); Business Administration Education; *Business Education; Business Education Facilities; Business Education Teachers; Community Colleges; Continuing Education; Dropout Rate; *Educational Assessment; Enrollment Trends; Faculty Development; Job Placement; Marketing; School Business Relationship; Small Businesses; State Surveys; Two Year Colleges
IDENTIFIERS *Florida

ABSTRACT

In 1988, a review was conducted of the business component of associate in arts and associate in science (AS) degree programs, and of the certificate programs in business in Florida community colleges and area vocational-technical centers. Focusing primarily on business programs in marketing, general business management, and small business management, the review gathered information on programs, enrollment, articulation, curricula, faculty development, equipment, facilities, support activities, equity, continuing education, and relations with business and industry. Information was collected through a review of the literature, a search of management information systems, public hearings, and a mail survey of the business programs in community colleges and area vocational-technical centers. Study findings included the following: (1) 69 AS programs in marketing and management; 17 one-year, college-credit certificate programs; 5 vocational certificate business programs; and 28 community college transfer programs in business administration, were identified; (2) in 1985-86, Black students represented 9% of the enrollment in community college business programs, while Hispanic students comprised 8%; (3) AS degree marketing programs in community colleges had a completion rate of 6%, while small business management degree programs had a completion rate of 7%; and (4) among AS graduates, job placement rates were 81% for marketing, 77% for general business, 80% for small business, and 50% for technical management programs. Based on study findings, 22 recommendations were developed for improving the delivery of business education. (ALB)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED305968

# PROGRAM REVIEW REPORT

## SELECTED BUSINESS PROGRAMS

FLORIDA STATE BOARD OF COMMUNITY COLLEGES

AND

DIVISION OF VOCATIONAL, ADULT AND COMMUNITY EDUCATION

FLORIDA DEPARTMENT OF EDUCATION

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

F. W. Atherton

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

NOVEMBER 1988

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

APPROVED BY STATE BOARD OF COMMUNITY COLLEGES
JANUARY 1989

APPROVED BY STATE BOARD OF VOCATIONAL EDUCATION
MARCH 1989

IC 890 191



BEST COPY AVAILABLE

# A Comprehensive Review of Selected Business Programs in Community Colleges and Area Vocational-Technical Centers

By

State Board of Community Colleges
and
Division of Vocational, Adult and Community Education

November 22, 1988

# PREFACE

Business programs in Florida, a traditional giant for so long, are facing new challenges. Rapid growth and change in business and industry demand an efficient, flexible educational delivery system. The subsequent impact upon employment needs, enrollment, curriculum, and equipment necessitates a review of the business programs in Florida's community colleges and area vocational-technical centers. This was a statewide, question-oriented review, designed to determine needs for future program direction and funding priorities.

A statewide review of business programs in general business, marketing, and small business involves many people. Appreciation is expressed to the business students, educators, business employers, State University System personnel, and others who participated in this review.

Special gratitude is expressed to the members of the Business Program Review Advisory Committee who helped plan, implement, and analyze the study.

TABLE OF CONTENTS

INTRODUCTION . . . . . 1

PURPOSE . . . . . 3

PROCESS . . . . . 5

Design of the Review, Advisory Committee, Methodology, Review of Literature, Management Information System Data, Regional Hearings, Survey of Business Components, Data Collection Summary

FINDINGS . . . . . 11

Program Inventories, Enrollment, Program Data, Articulation, Curriculum, Faculty Development, Equipment, Facilities and Support Activities, Equity, Continuing Education, Business and Industry Relations

SUMMARY . . . . . 65

RECOMMENDATIONS . . . . . 67

APPENDIX . . . . . 73

LIST OF TABLES


| Table | | Page |
|---|---|---|
| 1. | Inventory, Business Programs, Community Colleges | 12 |
| 2. | Inventory, Business Programs, Area Vocational-Technical Centers | 13 |
| 3. | Enrollment Distribution, Business Programs, Community Colleges/Area Vo-Tech Centers | 14 |
| 4. | Business Program Data, Community Colleges | 16 |
| 5. | Business Program Data, Area Vocational-Technical Centers, 1986-87 | 18 |
| 6. | Associate in Science Degree Transfers to SUS Business Programs, 1987-88 | 31 |
| 7. | Student Performance in SUS, Business and Management, 1986-87 | 32 |
| 8. | Full-Time Instructors, Business Programs, Community Colleges, Term II, 1987-88 | 48 |
| 9. | Equipment and Software Needs, Business Programs | 51 |

# INTRODUCTION

The State Board of Community Colleges (SBCC) is required in Section 240.311(3)(c), Florida Statutes, to conduct periodic reviews of community college instructional programs. The program review process followed by the State Board of Community Colleges was developed in conjunction with community college representatives. It incorporates the five-year cycle review of vocational programs by the Division of Vocational, Adult and Community Education (DVACE), and it complements the five-year cycle review by the Board of Regents. The DVACE participated with the State Board of Community Colleges in the conduct of this review, since the area vocational-technical centers and the community colleges offer the same, similar, and related instructional programs in business.

A review of the business component of associate in arts (AA) degree programs, of the associate in science (AS) degree programs, and of the certificate programs in business in Florida community colleges and area vocational-technical centers was conducted from January through June, 1988. The review focused primarily on the business programs in marketing, general business management, and small business management.

## PURPOSE

The statewide, question-oriented review of business programs in community colleges and area vocational-technical centers was designed to determine needs for future program direction and funding priorities. High growth and change in business have the following important implications for the planning and delivery of business instructional programs:

1. What business programs do community colleges and area vocational-technical centers provide?
2. What articulation takes place between area vocational-technical centers, community colleges, and universities?
3. What relationships are developing between area vocational-technical centers, community colleges, and the business community?
4. Are community colleges and area vocational-technical centers fully prepared to meet the needs of employers?

Additional questions prompted the review and impacted its direction. Do these programs provide enough high quality data processing equipment for their students? Are completion and job placement rates

satisfactory? Do faculty have enough opportunities to keep informed about business developments? Are minorities adequately represented on the faculties of the institutions?

In summary, the growth and changes facing Florida business and industry suggest that revisions may be needed in business instruction offered through area vocational-technical centers and community colleges. The review was designed to determine the recommendations needed for business programs to address the current and future concerns of business and industry in Florida.

## PROCESS

This section of the review report covers the design of the review, including both the process and the participants.

### Design of the Review

The Division of Community Colleges (DCC) in cooperation with the Division of Vocational, Adult and Community Education (DVACE) and the Division of Universities designed a comprehensive, statewide review which would obtain a cross section of inputs from students, employers, and educators. A Business Program Review Advisory Committee, supported by DCC and DVACE personnel, served as the task force for data collection, findings analysis, and recommendations development.

### Advisory Committee

A cross section of educators was selected in January, 1988, from nominations by the community college presidents and the DVACE. The Advisory Committee provided a continuum of direction and implementation for the review through a series of meetings and the development of a questionnaire. It conducted five regional hearings and proposed recommendations. Advisory

Committee members were:

Dr. Jack Partlow (chairman), Polk Community College

Dr. Jackie Eichelberger, Hillsborough Community College

Mr. Charles Head, Division of Vocational, Adult and Community Education

Ms. Deborah Hopkins, Valencia Community College

Dr. Melvin Johnson, Orlando Vocational-Technical Center

Ms. Carole McLean, Lake City Community College

Ms. Sandra Shaw, Palm Beach Community College

Dr. Paul Szuch, Okaloosa-Walton Community College

Dr. Isaac Williams, Central Florida Community College

Dr. Elizabeth Woolfe, Palm Beach Community College

Ms. Denise Young, Division of Universities

## Methodology

The Advisory Committee used four methods to gather information: a review of literature, a search of management information systems, public hearings, and a mail survey of the business programs in community colleges and area vocational-technical centers.

## Review of Literature

When an ERIC search was conducted, no state-level study of business programs at the community college level was found. Publications studied, found to be relevant, and used in this review were:

1. 1987 Vocational Education Proviso Study, Department of Education.

2. Program Review of Business Administration, Board of Regents, 1984.

3. The vocational education program review report and courses standards for business, marketing, and small business prepared by the Division of Vocational, Adult and Community Education.

4. Florida Statistical Abstract 1987.

5. Florida community college catalogs.

6. Report for Florida Community Colleges, 1987, Division of Community Colleges.

Management Information System Data

Information from the management information systems was furnished to the Advisory Committee. Information studied was:

1. Area vocational-technical center enrollment, completion, and placement data for business programs.

2. Business student performance data in the State University System.

3. Community college program review data displays for vocational and for associate in arts instructional programs.

4. Marketing, general business, and small business

management courses in the Common Course Designation and Numbering System.

General business, marketing, and small business management data were not available other than for the years furnished to the Advisory Committee. Furnished data were separated and calculated into the program categories of this review.

## Regional Hearings

Public hearings were held at five locations during April and May, 1988, to ensure that all interested educators and business people would have the opportunity to participate. The locations were Okaloosa-Walton Community College, Hillsborough Community College, Palm Beach Community College, Central Florida Community College, and Valencia Community College.

A cross section of input was secured through 250 participants involving students, area vocational-technical center personnel, community college personnel, public school system personnel, State University System personnel, Division of Vocational, Adult and Community Education representatives, and representatives from business and industry.

Discussion with educators focused on:

1. Three-way articulation between area vocational-technical centers, community colleges, and universities.

2. Articulation between community colleges and universities.

3. Articulation between local high schools and community colleges.

4. Opportunities for instructors to upgrade their skills. What graduate school opportunities exist? How are SPD funds being used to upgrade the skills of instructors in the business fields? Is the Vocational In-Service and Business Exchange Program being utilized?

Discussion with area employers focused on:

1. Need for certificate level graduates.

2. Need for AS graduates.

3. Projected needs.

4. Role of advisory committees.

5. Employer needs for continuing education and noncredit instruction.

## Survey of Business Components

A comprehensive survey was mailed to the community colleges in June, 1988. The questionnaire sought information about faculty qualifications, equipment and technological support, advisement and counseling services, equal access/equal opportunity concerns, articulation, and other factors related to the efficiency and effectiveness of business programs. The survey responses were used in the review.

## Data Collection Summary

Data collection for the business program review also was supported by personal interviews. The review objectives were discussed with college of business deans; chamber of commerce officials; and Department of Commerce/Economic Development, Industry Services, Sunshine Skills, and Associated Industries representatives.

Results of the survey, site hearings, and personal interviews serve as documentation for this report. The Advisory Committee met twice in June, 1988, to review the findings and propose recommendations for the report.

## FINDINGS

### Program Inventories

The program review found sixty-nine marketing and management associate in science degree programs, seventeen certificate (one year, college-credit) programs, and five vocational certificate business programs in community colleges. Refer to Table 1. In addition, the twenty-eight community colleges listed business administration as a program major to prepare for transfer to an upper division. The review identified five business programs in area vocational-technical centers in six of the sixty-seven public school districts. Refer to Table 2.

Associate degree and certificate programs at the community colleges are reported under a variety of CIP codes and program titles. The program titles in some cases show different names for the same program. Employers are confused about program titles and question duplication of effort and overlapping of resources when similar business management programs are offered by area vocational-technical centers and community colleges. Implementation of the vocational program level recommendations will help correct this problem.

TABLE 1

Inventory
Business Programs
Community Colleges

| Community Colleges | Mkt. Mid-Management | | Business Management | | | International Bus. | Marketing | | Bus. Administration | | General Business | | Small Bus. Management | | | Aviation Management | Business | | Technical Management | Retail Management | Wholesale Management |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AS | Ct | AS | Ct | VC | AS | AS | Ct | AS | Ct | AS | Ct | AS | Ct | VC | AS | AS | VC | AS | Ct | Ct |
| Brevard | X | | X | | | | | | | | | | | | | | | | | | |
| Broward | X | | X | | | X | X | | X | | | | | X | | X | | | | | |
| Central Florida | | | X | | | | | | | | | | | | | | | | | | |
| Chipola | | | | | | | | | | | X | | | | | | | | | | |
| Daytona Beach | | | X | | | | X | | X | | | | | | | | | X | X | | |
| Edison | | | | | | | | | | X | X | | | | | | | | | | |
| Florida CCJ | | | | X | | | X | | | | X | | | | X | X | | X | | | |
| Florida Keys | | | | | | | | | | | X | | X | X | X | X | | | | | |
| Gulf Coast | X | X | | | | | | | | | X | X | | | | X | | | | | |
| Hillsborough | X | | X | X | | X | X | | | | | X | | | | | | | | | X |
| Indian River | X | X | X | X | | | | | | | | | | | | | X | | | | |
| Lake City | X | | | | | | X | | | | | | | | | | | | | | |
| Lake-Sumter | | | X | | | | | | | | | | | | | | | | | | |
| Manatee | X | | | | | | | X | X | | | | | | | X | | | | | |
| Miami-Dade | X | | X | | | | | | X | | | | | | | X | | | | | |
| North Florida | | | X | | | | | | | | | | | | | | | X | | | |
| Okaloosa-Walton | X | | X | | | | | | | | | | | | | | | | | | |
| Palm Beach | | | X | | | | | | | | X | | | | | | | | | | |
| Pasco-Hernando | X | | | | X | | | X | X | | X | | | | | | X | | | | |
| Pensacola | | | X | | | | | X | | | | | X | | | | X | | | | |
| Polk | X | X | | | | | | | | | | | | | | | | | | | |
| Santa Fe | X | | | | | | | | | | X | | X | | | | | | | | |
| Seminole | X | | | | | | | | | | | | X | | | | | | | | |
| South Florida | | | | | | | | | | | X | | | | | | | | | X | |
| St. Johns | X | X | | | | | | | | | X | | X | X | | | | | | | |
| St. Petersburg | | | | | | | | | | | X | | | | | | | | | | |
| Tallahassee | | | X | | | | | | | | | | | | | | | | | | |
| Valencia | X | | | | | X | | | | | | | | | | | | | | | |

NOTE: AS = associate in science. Ct = college credit certificate.
VC = vocational certificate.

TABLE 2

Inventory
Business Programs
Area Vocational-Technical Centers

| County | Basic Bus. Mgt. | Business Admin. Operations | Business Admin. and Mgt. | Small Bus. Mgt. | Business Mgt. and Ownership |
|---|---|---|---|---|---|
| Collier | X | X | | | |
| Dade | X | X | | | |
| Escambia | X | X | | | |
| Hillsborough | | | | | X |
| Leon | X | | | | X |
| St. Johns | X | X | | | |

## Enrollment

Nationally, business continues to be the largest intended major for students enrolling in postsecondary education, accounting for one quarter of all degrees awarded, according to the U.S. Department of Education. In 1985, 125,000 students earned associate degrees in business; 250,000 students earned bachelor's degrees in business (compared to 50,000 in 1960). The same year, 60,000 earned master's degrees in business administration (compared to 5,000 in 1960). Florida follows the same trend.

In 1985-86, sixty percent of the community college A.S. degree students and sixty-three percent of the certificate students in business were female. In the area vocational-technical centers during 1986-87, the enrollment was sixty-six percent female. See Table 3.

The Florida Statistical Abstract 1987 reports that fifty-two percent of the Florida population is female. Accordingly, women do not appear to be underrepresented in the business programs.

TABLE 3

Enrollment Distribution
Business Programs
Community Colleges/Area Vo-Tech Centers

| | Community Colleges 1985-86 | | | | Area Vo-Tech Centers 1986-87 | |
|---|---|---|---|---|---|---|
| | AS | | Certificate | | | |
| | # | % | # | % | # | % |
| Male | 3069 | 40 | 58 | 37 | 93 | 34 |
| Female | 4622 | 60 | 100 | 63 | 183 | 66 |
| Alien | 183 | 2 | 0 | 0 | .. | .. |
| Asian | 74 | 1 | 6 | 4 | .. | .. |
| Indian | 28 | 1 | 0 | 0 | .. | .. |
| Black | 678 | 9 | 12 | 8 | .. | .. |
| Hispanic | 601 | 8 | 10 | 6 | .. | .. |
| White | 6127 | 80 | 130 | 82 | .. | .. |
| Handicapped | 107 | 1 | 1 | 0 | .. | .. |
| Total | 7691 | | 158 | | 276 | |

As shown in Table 3, black students in community college AS degree business programs represented nine percent of the enrollment, and Hispanic students

represented eight percent. The Florida Statistical Abstract 1987 reports that 13.8% of the Florida population is black and 8.8% is Hispanic. Consequently, black representation in the business programs is below the representative proportion of the population, and Hispanic representation is near the representative proportion of the population. For comparison with overall enrollment in the colleges, black enrollment is about nine percent and Hispanic enrollment is about twelve percent.

Students identified as handicapped in community college AS degree business programs constituted one percent of the enrollment in business programs in 1985-86. Frank Bowe in his book, The U.S. Census and Disabled Adults (1984), reported 9.9% of the Florida population had a work disability and 5.4% were prevented from working because of the disability. The proportion of the business program enrollment that is handicapped is much less than the proportion of the population that is handicapped.

## Program Data

### Completion Rate

Enrollment and completion in community college certificate and AS degree programs were analyzed. The data are presented in Table 4. The data should be

TABLE 4

Business Program Data
Community Colleges

| Program Groupings | 1983-84 | | | | 1984-85 | | | | 1985-86 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Placements | | | | Placements | | | | Placements | |
| | Enrolled | Completed | Completers | Leavers | Enrolled | Completed | Completers | Leavers | Enrolled | Completed | Completers | Leavers |
| **AS Degree** | | | | | | | | | | | | |
| Marketing | 1489 | 120 | 85 | 129 | 1684 | 105 | 79 | 182 | 2023 | 125 | 101 | 251 |
| General Bus. | 4740 | 310 | 210 | 573 | 5172 | 325 | 256 | 555 | 5387 | 323 | 249 | 456 |
| Small Bus. | 6 | 0 | 0 | 1 | 52 | 2 | 1 | 1 | 69 | 5 | 4 | 1 |
| Tech. Mgt. | 213 | 22 | 8 | 17 | 190 | 26 | 13 | 15 | 212 | 14 | 7 | 11 |
| **College Credit Certificate** | | | | | | | | | | | | |
| Marketing | 69 | 2 | 5 | 0 | 42 | 0 | 0 | 1 | 30 | 0 | 0 | 13 |
| General Bus. | 143 | 17 | 6 | 8 | 169 | 3 | 3 | 10 | 134 | 10 | 9 | 22 |
| Small Bus. | 25 | 0 | 0 | 7 | 15 | 1 | 1 | 2 | 34 | 3 | 2 | 3 |
| Tech. Mgt. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

interpreted cautiously, because the business educators who were interviewed believe that the classification of enrollment in the business programs does not distinguish adequately between those who plan to complete the programs and those who plan to take only a few courses.

The 1985-86 enrollment in marketing AS degree programs in community colleges and the 125 completers reported in Table 4 produce a completion rate of six percent. In 1983-84, the figure was eight percent. Thirty students were enrolled statewide in marketing certificate programs, but no graduates were reported for marketing certificate programs.

Small business management enrollment showed a 1985-86 AS degree completion rate of seven percent and a certificate program completion rate of eight percent. In 1984-85, the AS degree program completion rate was four percent.

Several community colleges developed a managerial degree program in concert with the specialized industry of the service area. Industrial management and aviation management are representative of the technical management programs in the community colleges. In 1985-86 a six percent completion rate was found in AS degree technical management programs, but no completers were reported in the certificate programs. By contrast, in 1983-84, a ten percent completion rate was reported for the AS degree

technical management programs.

During regional hearings and interviews, the Advisory Committee became concerned about the low completion rates in the reviewed programs. General business programs in community colleges had 5,387 enrollees in 1985-86 with only 323 completers. The completion rate in the AS degree programs in general business was six percent; in the certificate programs, it was seven percent. In 1983-84, the completion rate was seven percent, but enrollment was lower with only 4,740 students. Enrollment in general business programs has increased, but the completion rate has decreased. Area vocational-technical centers reported an even lower completion rate of only four percent. See Table 5.

TABLE 5

Business Program Data
Area Vocational-Technical Centers

| Program | Enrolled | Completed | Leavers | Others |
|---|---|---|---|---|
| Business Admin. | 95 | 4 | 3 | 88 |
| Basic Business Mgt. | 171 | 0 | 1 | 170 |
| Business Management and Ownership | 69 | 0 | 0 | 69 |

As reported at the beginning of this subsection, the business educators interviewed suggested that the method

used to report enrollment may distort the completion rate. Present enrollment figures may not differentiate between students who sign up for an entire program and those who enroll for just one component. Instead of being classified as program enrollees, the second group should be listed under "other personal objectives." Such students could study the components that interest them without being included among students who fail to complete the entire business program. Because students listed under "other personal objectives" do not affect the completion rate, the ratio of completers to enrollees would be more accurate. To determine a program completion rate and to make sound curriculum decisions, students with "other personal objectives" must be distinguised from students who plan to complete the full program.

Recommendation 1.-- Recommend the community colleges and area vocational-technical centers ensure that their procedures for recording enrollment follow current requirements for reporting instructional program affiliation to distinguish consistently between enrollment with the intent to complete job preparatory programs and enrollment for other personal objectives, so that program completion rates will be accurate.

Follow-up

Business students who complete job preparatory programs at community colleges and area vocational-technical centers are tracked to see if they work in the field for which they were trained. If the student finds a position which uses the competencies

learned in the business program, or enters military service, or continues in postsecondary education, then the student is considered to be properly placed.

Of the students who completed associate in science degree programs in business in community colleges (Table 4), the 1985-86 overall placement rates were:

| | |
|---|---|
| Marketing | 81% |
| General Business | 77% |
| Small Business | 80% |
| Technical Management | 50% |

Although the AS degree completion rates are decreasing, the placement rates in marketing, general business, and small business management are improving. In technical management programs, the program completion rate is too low to draw conclusions other than to suggest that community colleges should determine if the specialized market served by the program is still a viable one.

Data on associate in arts degree business majors are found in the Level I program review data displays. The data track community college graduates who enter Florida's public universities, and compare their upper division performance with other transfer students and with native students. Detailed information and analysis of the tracking of AA degree graduates are found in the next section of this report.

## Articulation

The Advisory Committee heard numerous complaints about the problems students have in transferring credit to the state universities. Although the State University System (SUS) Program Review of Business Administration indicated that there were no significant articulation problems with the community colleges, the Advisory Committee found otherwise. The major issue is the transfer of credit for courses in principles of management, principles of marketing, and principles of finance, which the American Assembly of Collegiate Schools of Business (AACSB) asserts should be taken only at the junior or senior levels. Six of the nine SUS institutions are members of AACSB, and the Board of Regents has directed the remaining three universities to seek membership. The prohibition regarding the above courses being taken at the lower level (freshman/sophomore) is embedded in the AACSB curriculum standard which reads:

> Examples of courses which might be offered at the lower division level are principles of accounting, principles of economics, business law, statistics, and introduction to business. Examples of courses which should be offered only at the upper division level are principles of finance, principles of management, and principles of marketing.

Further, the AACSB standard states:

> An undergraduate school of business should concentrate its professional courses in the last two years of a four-year program, and should offer only a limited amount of work below the junior year.

The objective is to provide a foundation of work in those academic areas necessary for an appropriate combination of descriptive and analytical approaches to the study of business administration. Such foundation work normally includes courses in communication, mathematics, social science, humanities, and natural science.

The universities which are members of AACSB contend that they may lose their accreditation if they accept in transfer the credits for principles of finance, principles of management, and principles of marketing courses taken in the community colleges or at a lower division level. The curriculum standard has erupted into a national controversy between the AACSB and the American Association of Community/Junior Colleges (AACJC). AACJC has been trying to pressure the AACSB during the past eight years to change the standard so that it does not discriminate against community college transfers. Further, AACJC has argued that the community colleges are fully capable of offering the courses in contention. Most community colleges around the country continue to offer the courses for students transferring to non-AACSB colleges and universities. AACJC contends that the students who transfer to non-AACSB institutions do well. At this time, there is no resolution of the issue at the national level.

The situation in Florida is more complicated than it is at the national level, because the transfer of course credit is governed by the Articulation Agreement (Rule 6A-10.024, FAC) and by statutes which insure the transferability of credit for courses judged equivalent in the Common Course Designation and Numbering System. The Articulation Agreement establishes the associate in arts (AA) degree as the transfer degree, meaning that the nine SUS institutions are required to accept all the credits earned by its holder as long as the degree was conferred by the college or university as prescribed in the Agreement. The AA degree is defined as a sixty-credit degree, which must include at least thirty-six credits in general education. The remaining twenty-four credits are to be in college credit work in the introductory, preprofessional, or elective areas. The universities are not to look behind the sixty-credit package and pick and choose which introductory or exploratory courses they wish to accept in transfer. The AACSB standard runs fully counter to this basic concept of Florida administrative law.

The Articulation Agreement does not cover the associate in science (AS) degree or work taken in a postsecondary adult vocational certificate program except through Section (14), which invokes the Common Course Designation and Numbering System as a protection for

courses entered in the system and determined to be equivalent among the institutions offering the same courses. In other words, Section (14) protects all credit regardless of whether the student has an AA degree. The Articulation Agreement provides broad transfer credit protection, as indicated above, for the general education component of the degree and for the remainder of the AA degree course work at the introductory/preprofessional level, but it does not guarantee that the transfer credit will apply toward major requirements. However, Section (14) also guarantees that the introductory/preprofessional courses shall be treated as credit toward major requirements in the same way as for a university native student. Although some of the courses in question may be accepted for transfer by the universities as electives, they apparently are not being applied to major requirements. Section (14) of the Agreement states:

> (14) When a student transfers among institutions that participate in the common course designation and numbering system, the receiving institution shall award credit for courses satisfactorily completed at the previous participating institutions when the courses are judged by the appropriate common course designation and numbering system faculty task forces to be equivalent to courses offered at the receiving institution and are entered into the course numbering system. Credit so awarded can be used by transfer students to satisfy requirements in these institutions on the same basis as native students.

With respect to the principles courses in question

(finance, marketing, and management), the Common Course Designation and Numbering System has established equivalencies for each of these courses among community colleges and universities. Fourteen community colleges and no universities offer the principles of finance course, so the Articulation Agreement, Section (14), does not assure the transfer of credit for that course, because there is no equivalent university course. The situation in marketing and management principles courses is different, since both community colleges and universities offer courses judged equivalent. In the case of marketing, twenty-seven of the community colleges and the University of North Florida offer the principles course. The University of North Florida course is offered at the upper level, while the community colleges offer it at either the freshman or sophomore level. The Articulation Agreement, then, guarantees transfer of credit and its application for the principles course to the BS requirements at the University of North Florida only, because the other eight SUS universities do not offer an equivalent course.

With respect to management, twenty-seven community colleges and four universities (Florida A & M, University of Florida, University of South Florida, and University of West Florida) offer the principles course. Theoretically and legally, credit for the principles of

management course must transfer from the twenty-seven community colleges to the four universities without qualification and be applied against the BS in business major requirements by virtue of Section (14) of the Articulation Agreement. The survey conducted as part of the program review indicated that the community colleges do not believe that this is true. It is alleged that the universities are taking the courses on a provisional basis or applying them as elective credit rather than as credit toward major requirements. One college believes that one of the universities is giving transfer students a test to validate the credit in the course under question.

It appears that, for community college transfers with AA degrees, there is, at the very least, continuing confusion in Florida about the transferability of credit for the courses identified in the AACSB curriculum standard from community colleges to the universities under the terms of the Articulation Agreement. Further, it appears that the issue primarily is centered on the transfer of credit for the principles in management course, as it is the only one of the three courses under question that is offered by community colleges for transfer to an AACSB accredited university program. The University of North Florida is not a member of AACSB, so it is free to accept the course credit without fear of

restriction.

With regard to the controversy over the role of the AACSB in the transfer of course credit in the Florida postsecondary education system, the following questions should be addressed:

1. Does Section (14) of the Articulation Agreement as a provision in Florida administrative law hold precedence over the AACSB curriculum standard as a directive to the universities for accepting and applying transfer credit?
2. Is it appropriate for community colleges to offer the courses in question, if the universities will not accept them against a major in business administration, because they are either restricted by the AACSB or do not offer the equivalent courses?
3. Is the problem related to a difference between how the universities and community colleges define introductory, exploratory, and preprofessional courses?

The first question is a legal one, while the second and third are more challenging and educationally substantive issues, which the teaching profession must address in a professional and objective manner. Accusations have been leveled at the national level that the AACSB position not only is arrogant and territorial, but it shows a lack of knowledge and understanding of the

capability of the community colleges to offer introductory work in a major. The Florida Articulation Agreement in Section (9) specifically ascribes to community colleges the responsibility to "offer introductory courses to enable students to explore principal professional specializations available at the baccalaureate level." In all academic and professional disciplines, what constitutes introductory and exploratory courses is always at issue between community colleges and universities, but in most disciplines, the definitions have not been as rigidly stated as has been the case with the AACBS. In most other disciplines, students take introductory courses at either the sophomore or junior levels and the universities are quite liberal in applying them to the major degree requirements. The awarding of transfer credit toward a major normally is made by universities when they judge the community college courses to be substantially the same as the university courses, even when the common course numbers are not precisely the same. This was the case in Florida with respect to business courses until the AACSB promulgated its curriculum standard in 1980.

Although the AACSB transfer issue is the most serious articulation problem identified in the program review, the survey indicates that there are other courses offered by the community colleges that should be accepted

for transfer by SUS business programs. Some of the courses identified were, real estate (REE 1040), business law (BUL 1012 and BUL 2012), introduction to business (GEB 1011), business data processing (COC 1317), and accounting (ACG 2001 and ACG 2011). Time and resources did not permit a detailed investigation of the circumstances relative to each of these courses, and more study is needed to determine whether there are other courses that need examination.

The survey results and the testimony at the regional hearings indicate that there are continuing community college/university articulation problems, which can be addressed best by more systematic articulation activities between and among the faculties from both systems. Such articulation should involve routine conferences at the local level between faculty of the university colleges of business and of the feeder community colleges to discuss student learning expectations, curriculum content issues, and the transferability of credit. The issues and problems need study at the state level, as well, because the AACSB position on transfer is in conflict with state policy (the Articulation Agreement).

Recommendation 2.-- Recommend the Articulation Coordinating Committee appoint a task force of representatives from the community colleges and universities to study the transfer of credit issues identified in this review, to study other identified barriers to improved articulation of business programs in the community colleges and universities, and to recommend how the barriers can be eliminated.

The Advisory Committee investigated the effectiveness of the transfer manuals provided by the universities and used by the community college and university advisers. It found that community college students who follow the manuals experience very few transfer problems. However, all students may not have access to the information in the manuals. The new SOLAR computerized advisement system will help close the gap.

Recommendation 3.-- Recommend the community colleges ensure that their personnel who work with students who intend to transfer to the state universities are thoroughly familiar with the university transfer manuals and SOLAR, and provide annual workshops for academic advisers to learn about legal issues, curriculum changes, and other policies.

Although articulation between universities and community colleges is the primary articulation concern identified through the review, the articulation of postsecondary adult vocational (PSAV) certificate programs with AS and AA degree programs also was identified as a concern. The articulation of AS degree business programs with university BS in business programs is not covered under the Articulation Agreement; however, the Advisory Committee believes that if faculty contacts between the sectors are intensified, AS to BS degree articulation could be improved and agreements developed to transfer some of the AS degree courses that are related to the professional sequence. Table 6 indicates there were 357 AS degree transfers in the SUS in

1987-88. Some transfer of AS degree credit already exists, but it needs to be identified and regularized. Table 7 indicates that AS transfer students in business appear to outperform native university students and AA transfers with respect to grade point average; however, approximately a term (14 credits) longer is required for these students to get a BS degree. This phenomenon bears further investigation.

TABLE 6

Associate in Science
Degree Transfers to SUS
Business Programs
1987-88

| University | Number of AS Degree Transfers |
|---|---|
| University of South Florida | 99 |
| University of West Florida | 83 |
| University of Central Florida | 73 |
| Florida International University | 41 |
| University of North Florida | 33 |
| Florida State University | 19 |
| Florida Atlantic University | 7 |
| University of Florida | 2 |
| Florida A & M University | 0 |
| Total | 357 |

TABLE 7

Student Performance in SUS
Business and Management
1986-87

| | Florida CC AA Graduates | Florida CC AS Graduates | Other Transfers | SUS Natives |
|---|---|---|---|---|
| Unduplicated Upper Division Headcount | 12,463 | 415 | 9,217 | 6,438 |
| Mean Cumulative GPA | 2.61 | 2.77 | 2.70 | 2.84 |
| Percent at 3.0 or Above | 27.8 | 38.3 | 34.4 | 38.3 |
| Percent Below 2.0 | 13.4 | 9.8 | 9.6 | .8 |
| Percent Suspended | 3.3 | 2.6 | 2.6 | .2 |
| Percent Graduated | 14.0 | 13.4 | 15.3 | 22.3 |
| Average Credits Attempted per Term | 7.7 | 6.4 | 8.2 | 10.2 |
| Average Credits of Graduates | 133.7 | 144.6 | 137.6 | 130.0 |

Recommendation 4.-- Recommend the Division of Community Colleges continue tracking the performance of associate in science degree graduates in state university business programs and, if needed, conduct a study to understand the performance and the two plus two articulation models involved.

If a path can be identified for the AS student to earn the BS, and if articulation between the PSAV certificate programs and the AS or AA programs can be defined more clearly, students should have more educational and career options opened to them by our

postsecondary education system. Ideally, students should be able to move from a PSAV certificate to an AS or AA to a BS with a minimum of program redundancy. However, students using such a route to the BS in business will always have to expect that their programs will take longer and that some courses will not apply to the next program up the ladder, because the programs have different purposes. Articulation should be directed toward finding where there is unnecessary redundance in the path, and toward moving students through the system based on the assessment of competencies achieved and knowledge acquired.

Recommendation 5.-- Recommend community colleges and universities increase Level II program review efforts to conduct local articulation meetings and other activities to ensure that articulation issues between specific institutions are resolved.

A number of community colleges are developing articulation agreements with area vocational-technical centers in the area of business. These arrangements usually involve the community college assessing the PSAV instruction and awarding credit toward an associate degree. Some of this determination of equivalency is being done through the Common Course Designation and Numbering System, which facilitates such articulation. The Vocational Program Level Project led by the DVACE during the past four years has helped to identify articulation problems and the potential for improved

articulation between PSAV and AS programs. The development of curriculum frameworks for all the programs in the area vocational-technical centers and community colleges also is a useful tool for improving articulation.

In light of developments through the Common Course Designation and Numbering System and the Vocational Program Level Project, there is not a need for further or additional structured activities at the state level to foster PSAV to AS/AA articulation. However, the Advisory Committee urges colleges and area vocational-technical centers to work more closely and systematically at the local level to develop articulation arrangements which foster the development of career and educational options for students who begin postsecondary instruction at the vocational certificate level.

Recommendation 6.-- Recommend the community colleges and area vocational-technical centers develop formal agreements for the community colleges to recognize learning that occurs in the area vocational-technical centers and to provide for the smooth movement of students from the centers to the colleges.

## Curriculum

This section on selected curriculum concerns regarding business education results from issues raised in regional hearings and from responses to the survey of business programs. Presentation of the findings is organized by Tyler's Mode of Curriculum (1949).

According to Tyler, the four divisions of inquiry addressed herein are essential for curriculum planning:

1. What educational purposes should the instruction seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine these purposes are being attained?

Testimony at the regional hearings attended by persons representing business and industry, area vocational-technical centers, community colleges, and universities indicated that there appears to be confusion as to the purposes of instructional programs leading to associate in arts (AA) degrees, associate in science (AS) degrees, postsecondary vocational college credit certificates (PVC), and postsecondary adult vocational certificates (PSAV). Under a 1984 legislative mandate, the Division of Vocational, Adult and Community Education (DVACE) has coordinated an effort to assign a consistent, statewide program level classification to each vocational/occupational program offered by the community colleges and the area vocational-technical centers. The effort, known as leveling, has brought hundreds of faculty together from the two systems to examine current

offerings, program purposes, job entry requirements, clienteles being served, curriculum frameworks, and student performance standards in order to recommend to the state how each program should be classified as to AS, PVC, and PSAV levels. The leveling project has been one massive articulation program, resulting in a completely new taxonomy of programs. The leveling process will continue as new programs emerge and current ones undergo revision to make them more responsive to the employment environment.

Unfortunately, in some respects, the Level III business review was going on at the same time decisions were being made on how business programs should be leveled and described in the new classification system, so the leveling process could not take advantage of the review findings which follow. The approved taxonomy for business still shows generally a two-level classification, AS in business management and PSAV in business supervision, which may be appropriate, but this review has raised questions as to the content and utility of these certifications and the possible need for others.

This section will not deal with the AA degree. The AA degree is the university parallel program, which technically is not a specialized degree beyond containing introductory, exploratory, and preprofessional level courses in fields such as business. In other words, the

AA university transfer student is not earning an AA in business, but a transfer degree which may have some business introductory or preprofessional courses in it. The articulation of the students transferring to the universities in the field of business is covered in depth in the section on articulation. This section will concentrate on problems and issues related to the AS and PSAV programs, which primarily are designed to prepare students for immediate job entry.

When the Advisory Committee put together what it heard at the regional hearings and the results of leveling, it became apparent that they are somewhat in conflict. The curriculum frameworks and student performance standards for the AS and PSAV programs recently placed in the state's program inventory through the leveling process do not appear to agree with the views of business and industry heard at the hearings with respect to what the colleges and area centers should be teaching. Further, testimony from business and industry indicated that there is a serious question as to whether an AS degree in business serves any purpose at all. Employers do not seem to be impressed with it as a job entry certification. Giving credence to this opinion, the Advisory Committee's examination of program completion rates, discussed in the section on program data, showed that the vast majority of the AS business

students are leaving the programs early without earning the degree. Less than ten percent of the students appear to be staying in the AS programs to complete their degrees. The few who do complete their programs appear to get jobs, but the employers claim that it was not the possession of the degree that caused them to employ these graduates. Most of the students leaving the programs early were getting employed, as well.

Not only is the AS degree's potency as a job entry certificate under question, but the Advisory Committee believes that the content of the degree, if it is to continue, needs restudy or revision. It is the view of the Advisory Committee, after reviewing the curriculum frameworks for the AS degree and examining college catalogs, that the curriculum has been static for two decades, reflecting content that has not changed. The Advisory Committee noted that while enrollment in the business programs has remained high, this may be more a function generally of increased interest on the part of students in going into business, than because the business programs are strong or attractive. As mentioned above, the fact that so many students leave the programs early may be an excellent indication that students do not find in the content of the programs what they anticipated. The Advisory Committee learned, as well, that the early leaving students tend to earn as much as

those who complete the program, indicating that early leaving students apparently learn the skills and competencies required by the job market.

The results of the survey and the hearings provided information to the Advisory Committee on the extent to which the business programs are teaching specialized knowledge, skills, and competencies needed by students in the current job market. The most pervasive criticism from employers was that the students graduating with AS degrees and PSAV certificates were inadequately prepared in basic business skills and in communication and computation skills. This criticism goes to the very heart of the instructional program, raising the most serious kinds of questions as to the quality and pertinence of current offerings. There was a strong belief on the part of the Advisory Committee that these criticisms must be addressed quickly or consideration given by the colleges to the elimination of the degree as a valid job entry certification.

There appears to be a need to define more clearly a statewide core of courses in business and general education that will provide assurances to employers that the AS degree and PSAV certificate programs prepare students differently to perform at recognizably better levels in the job market than those without such preparation. Right now, it appears that such a

distinction does not exist in the perception of the business community. If such a perception can be reversed, the AS degree will be viable, and students will believe that it is worthwhile to persist through the entire degree program.

While accreditation criteria of the Southern Association of Colleges and Schools (SACS) require students to take more traditional English and mathematics courses, the Advisory Committee nevertheless believes that students should continue to take more specialized courses in business English and business mathematics. This need is especially pronounced in the areas of business management and marketing. These courses are geared to the kinds of writing and math skills and competencies peculiar to the business world. These skills and competencies need, however, to be more sharply delineated. Students need to take the traditional courses in English and mathematics before they take these specialized courses. In other words, the Advisory Committee believes that students should be advised to take the traditional English and mathematics courses early in their program as a foundation for the more specialized courses.

With regard to the core of specialized business courses students need, the Advisory Committee believes that such a core should be defined with more precision.

The Committee was in agreement, however, that the core should develop in students the following knowledge, skills, and competencies:

1. Knowledge of computers.
2. Integrated knowledge of management, marketing, and finance.
3. Leadership and decision making skills.
4. Consistent work habits and punctuality.
5. Interviewing skills and resume writing.
6. Personal hygiene.

Of special concern are leadership and decision making skills. Work habits, interviewing skills, and personal hygiene need to be developed in students and reinforced by all sectors of education involved in preparing students for business and industry, including the schools, colleges, and universities. These are as much employability skills as those directly related to the basics of a business field.

The problems and deficiencies identified above strongly suggested to the Advisory Committee that special efforts need to be launched by the business educators to work collegially to make needed program revisions and improvements. The state's curriculum frameworks, which contain the minimum skills and competencies needed for job entry, and the performance standards required for graduates need a complete restudy and possible overhaul.

The frameworks and performance standards need to be examined with the strongest possible involvement of the business community, so that they are relevant to the actual job market demands and imperatives.

With respect to the general education component of the AS degree and PSAV certificate programs, the Advisory Committee noted that the Southern Association of Colleges and Schools (SACS) accreditation criteria require that at least twenty-five percent of the course work in vocational/occupational programs be comprised of general education, including standard courses in English and mathematics. The SACS criteria do not permit the substitution of business English and business mathematics for the more traditional college level English and mathematics. It was noted by the Advisory Committee, also, that the SACS criteria may contribute to the high leaving rate for students in the business programs, as some students may not want to take the more traditional English and mathematics courses, which are perceived by students to be more difficult. Such students may not feel that they are prepared to take such courses, and thus will need to be assigned to remedial (college or vocational preparatory) instruction. Students requiring remedial instruction in communication and computation constitute about sixty percent of the students entering community colleges and area centers. College and

vocational preparatory students automatically take longer to complete their programs, as such instruction cannot be applied to their degrees or certificates.

The reexamination of the programs should include a review of instructional delivery modes, e.g. length of courses, the use of experiential learning (the assessment for credit of life and work experience and cooperative education), and the development of co-curricular programs. The Advisory Committee concluded from the hearings and the survey that the business programs are structured on the same patterns as those offered at the bachelors level by the universities. AS degrees need to articulate with the university programs, but this does not mean that the colleges cannot devise more flexible instructional programs to get across the same knowledge, skills, and competencies to a different clientele. The community colleges tend to serve an older, already employed clientele, attending college part-time. These students would benefit from their programs being offered at night and on weekends and in modularized, one-credit instructional units.

Teleconferencing, short courses, and seminars fit well with this clientele and are useful ways to stimulate learning for all students. Cooperative education, the alternation of work and study, is a very old method of providing students a hands-on opportunity to make

applications of theory in a real world work environment. Cooperative education should be used more vigorously. People who have been working would like to have their knowledge and experience evaluated by the colleges and area centers and credit awarded on the basis of such an assessment, so that they will not be required to take courses which are redundant of what they already know. Such an assessment will shorten, as well, the time it will take them to complete a degree or certificate program. Co-curricular programs, such as those of Phi Beta Lambda and Delta Epsilon Chi, the leadership business clubs found on some campuses, provide opportunities for students to develop leadership skills and make contacts useful in finding jobs that will fit their interests and needs. Such opportunities help, also, to recruit students to the programs. Case studies and computer simulations of business situations are other ways the colleges and area centers can make their programs more interesting and challenging.

Although the above suggested instructional changes are directed toward the degree and certificate programs, these more flexible approaches should be used in supplemental and continuing education programs, as well. Many of the business persons who participated in the regional hearings indicated that, while they are interested in who the colleges and area centers graduate

with degrees and certificates, they are just as interested in the kinds of instruction the institutions can provide for persons on-the-job who do not need or require degrees or certificates. This clientele or market is, perhaps, greater than the degree and certificate seeking one. The community colleges and area centers need to find more flexible means to reach and serve this potential student market. Many of these students already are employed and are using the college or area center simply to take a course or two to upgrade themselves, not to get a degree or certificate. They more properly are supplemental students.

If our colleges and centers are to be truly responsive to community needs, then the area of business is, perhaps, the most logical place to look to see a close fit between what is required by the employers and what should be offered in the training. Unfortunately, the Advisory Committee found evidence that the fit currently is not universally what it should be.

The Advisory Committee believes that if the fit between what business and industry needs and requires and what is being done in the degree, certificate, and supplemental programs is not entirely as it should be, then, the local program advisory committees may not be functioning as well as they should. These program advisory committees are the primary link between the

institutions and business and industry to communicate expectations. There needs to be a strengthening of these committees, which are found at every college and area center. The hearings and survey indicated that these advisory committees are of great value to the faculty in the programs and to those administering them, but they could be strengthened by having some committee members be representative of the higher echelons of the local businesses. Upper level business executives could bring a broader perspective to the colleges and area centers as they plan and develop their business programs. The Advisory Committee supports such an idea.

The following recommendations are those that the Advisory Committee believes address the concerns and issues raised by the findings.

Recommendation 7.-- Recommend the Division of Community Colleges establish a task force to study the future of the associate in science in business and recommend options to the colleges, which may include terminating the associate in science in business, modernizing the program, and redesigning the curriculum to meet current demands of employers.

Recommendation 8.-- Recommend the community colleges, in keeping with the criteria of the Southern Association of Colleges and Schools, advise students of the need to be competent in basic skills in English and mathematics and, further, advise students to complete such requirements early in their programs so that they can take more specialized business English and mathematics courses later in their programs.

Recommendation 9.-- Recommend the community colleges and area vocational-technical centers participate fully in the development of the new curriculum frameworks and performance standards for job preparatory programs (AS and PSAV) to ensure that they

provide the job entry knowledge, attitudes, and skills expected by employers. These skills should include appearance, punctuality, resume writing, and job interviewing.

Recommendation 10.-- Recommend the community colleges and area vocational-technical centers reexamine their instructional programs to determine the extent to which more flexible modes of instruction should be employed to improve the efficiency and effectiveness of instruction, including the use of cooperative education, the assessment of experience, teleconferencing, computer simulation, case studies, and co-curricular programs.

Recommendation 11.-- Recommend community colleges and area vocational-technical centers examine the business representation on their business program advisory committees and ensure at least one upper-level business executive on each committee.

## Faculty Development

The review of business programs explored opportunities for instructors to upgrade their teaching skills and their knowledge of their discipline, and found that faculty need expanded opportunities to keep current in their fields. Faculty development is a complex issue for many reasons. First, business instructors come from a variety of educational backgrounds. Table 8 indicates the degrees held by business instructors, and provides gender and race information. Second, business instructors must try to keep abreast of rapid changes in management, finance, production, marketing, and computer technology. Finally, they have more contact with the public than many other faculty members, and are involved in articulation with high schools, area vocational-technical centers, other community colleges,

TABLE 8

Full-Time Instructors
Business Programs
Community Colleges
Term II, 1987-88

| Community Colleges | Total | Doctorate | MA Only | BA Only | Male | Female | White | Black | Hispanic | Asian |
|---|---|---|---|---|---|---|---|---|---|---|
| Brevard | 17 | 3 | 11 | 3 | 6 | 10 | 14 | 2 | | 1 |
| Broward | 45 | 18 | 25 | 2 | 31 | 14 | 38 | 5 | 1 | 1 |
| Central Florida | 19 | 5 | 14 | | 17 | 2 | 19 | | | |
| Chipola | Questionnaire not returned | | | | | | | | | |
| Daytona Beach | 11 | | 11 | | 8 | 3 | 10 | 1 | | |
| Edison | 17 | 1 | 15 | 1 | 16 | 1 | 16 | | | 1 |
| Florida CCJ | 48 | 7 | 35 | 6 | | | 46 | 2 | | |
| Florida Keys | 5 | | 4 | 1 | 5 | | 4 | | 1 | |
| Gulf Coast | 12 | | 12 | | 8 | 3 | 10 | 2 | | |
| Hillsborough | 28 | 6 | 22 | | 17 | 11 | 25 | 2 | 1 | |
| Indian River | 10 | 1 | 9 | | 3 | 7 | 8 | 2 | | |
| Lake City | Questionnaire not returned | | | | | | | | | |
| Lake-Sumter | 16 | 3 | 10 | 3 | 12 | 5 | 16 | | | |
| Manatee | 11 | 1 | 9 | 1 | 6 | 2 | 9 | 2 | | |
| Miami-Dade | 31 | 10 | 21 | | 22 | 9 | 25 | | 6 | |
| North Florida | 3 | | 1 | 2 | 1 | 2 | 3 | | | |
| Okaloosa-Walton | 11 | 1 | 10 | | 7 | 3 | 10 | 1 | | |
| Palm Beach | 24 | 5 | 19 | | 16 | 8 | 23 | 1 | | |
| Pasco-Hernando | 24 | 6 | 16 | 2 | 16 | 8 | 24 | | | |
| Pensacola | 33 | 10 | 23 | | 15 | 18 | 30 | 3 | | |
| Polk | 12 | 5 | 7 | | 9 | 3 | 11 | 1 | | |
| Santa Fe | 9 | 3 | 6 | | 6 | 3 | 9 | | | |
| Seminole | 15 | 1 | 13 | 1 | 7 | 8 | 14 | 1 | | |
| South Florida | 1 | | 1 | | 1 | | 1 | | | |
| St. Johns | 13 | 4 | 9 | | 10 | 3 | 13 | | | |
| St. Petersburg | 35 | 8 | 26 | 1 | 19 | 16 | 32 | 3 | | |
| Tallahassee | 4 | 0 | 4 | | 1 | 3 | 4 | | | |
| Valencia | 12 | 4 | 8 | | 8 | 4 | 11 | 1 | | |
| Total | 466 | 102 | 341 | 23 | 267 | 146 | 425 | 29 | 9 | 3 |

and universities. They face special challenges in their relationship with the business community.

Responses to the survey of community colleges produced five issues related to faculty development with which the Advisory Committee concurs:

1. Business faculty need more opportunities to join and participate in professional organizations. Funds are needed to cover conference costs and to pay the substitute instructors for those attending professional development meetings.
2. More flexibility is needed in faculty/business exchanges. Ideally, every instructor should leave his teaching position occasionally to return to the business world. In some areas, an instructor sometimes can spend a summer working in a business. But in other areas, instructors find it difficult to schedule these leaves, because substitute teachers are hard to find. The Vocational Inservice and Business Exchange Program should address this problem. It also should extend the leaves that instructors take when they return to the business world, as business people state at least six months is needed.
3. Changes are needed in the policies concerning part-time faculty. Adjunct instructors need higher pay and more opportunities for involvement in

curricular decisions. Hiring practices need to be more flexible. Many business people would make excellent instructors, but they lack academic credentials. Training seminars should be developed to encourage these people to become instructors.

4. Faculty need to be more involved with co-curricular activities and with cooperative education to make new contacts with the business community. The business faculties of Indian River, Palm Beach, and Broward Community Colleges have developed particularly effective co-curricular programs.

5. Instructors need more planning time before faculty development proposals are due. Sometimes a deadline will pass before faculty are informed that grant money is available.

Recommendation 12.-- Recommend community colleges and area vocational-technical centers encourage business faculty to apply for business exchange and other faculty development opportunities. Leaves through the Vocational Inservice and Business Exchange Program should be as near six months as possible.

Recommendation 13.-- Recommend alternative means of certifying area vocational-technical center business teachers be explored, and recommend community colleges and area vocational-technical centers provide for seminars where full-time faculty help part-time faculty learn teaching skills.

Recommendation 14.-- Recommend the Division of Vocational, Adult and Community Education adjust its procedures for requesting proposals for funds to ensure adequate notice before proposal deadlines.

## Equipment

General business, marketing, and small business programs require expensive equipment and computer software. Program specialists from the Division of Vocational, Adult and Community Education and local program advisory committee members visited the community college and area vocational-technical center programs to determine whether instructional resources are available to meet student performance standards. They found that a significant number of the community college programs lack up-to-date equipment and software to meet program objectives, and that many programs lack equipment replacement schedules. They found that the area center programs have sufficient equipment and software with minor exceptions. The deficiencies are listed in detail in the appendix and are summarized in Table 9.

TABLE 9

Equipment and Software Needs
Business Programs

| | Community Colleges | Area Vo-Tech Centers |
|---|---|---|
| General Equipment | $ 509,277 | $ 10,510 |
| Specialized Equipment | 3,884,185 | 55,400 |
| Specialized Resources Software | 871,000 | 6,000 |
| Total | $5,264,462 | $ 71,910 |

Recommendation 15.-- Recommend the State Board of Community Colleges and the Department of Education include in their legislative budget requests $5,264,462 for community colleges and $71,910 for area vocational-technical centers to obtain up-to-date equipment and software to enable business instructional program standards and objectives to be met.

Recommendation 16.-- Recommend the community colleges adopt equipment replacement schedules for the equipment in computer science and data processing instructional programs.

Through the regional hearings, the Advisory Committee learned that equipment purchases sometimes have been made without adequate planning and preparation. The proper use of equipment is directly related to properly wired classrooms, timely equipment repair contracts, and work station arrangements similar to those in the business world. Equipment, software, and facilities are interrelated and should be planned in concert.

## Facilities and Support Activities

### Facilities

Program specialists from the Division of Vocational, Adult and Community Education and local program advisory committee members visited the community college and area vocational-technical center business programs to determine whether the facilities in which the programs are housed enable student performance standards to be met. They found that deficiences in community college business program facilities make the attainment of

student performance objectives extremely difficult. They found no such deficiencies in area center business program facilities.

Recommendation 17.-- Recommend the community colleges that house business instructional programs in facilities determined to be deficient by the vocational instructional program review of business programs conducted by the Division of Vocational, Adult and Community Education incorporate that determination in their planning for facilities construction, remodeling, and renovation.

## Support Activities

Student support activities provide evaluation, counseling, and other services to help students progress and to complete their programs. A 1987 U.S. Department of Education study shows that the students served by community colleges and area vocational-technical centers rely heavily on these services. Many people who attend vocational programs are high-risk students, e.g., high school dropouts and older working students. The study concluded that such students have a high need for testing and remediation, counseling, and other support such as financial aid and child care. The Advisory Committee used the survey and the regional hearings to study selected support activities. It found:

1. Libraries.-- Almost ninety percent of the community colleges responded that their business collections were adequate in size and quality.

2. Admission policies.-- All community colleges

have open admission policies, and all follow standard admission practices.

3. Placement testing.-- Half the community colleges require placement tests for certain courses.

4. Counseling services.-- All community colleges provide academic counseling. Related to this finding, the Advisory Committee recognizes that many business students attend classes only in the evening, and endorses and encourages the efforts of the community colleges to increase the availability of counseling during evening hours.

## Equity

Equal opportunity is an integral part of each institution's policies. Equity concerns will increase because of the changing composition of the work force. David Reed, in a Hudson Institute projection (1988), found that white males constitute fifty percent of the work force today, but will constitute only fifteen to seventeen percent by the year 2000.

The section on enrollment in this report shows the need to recruit black and Hispanic students into the business programs of community colleges and area vocational-technical centers.

The survey of the community colleges found that thirty-five percent of business faculty were female.

Black faculty constituted seven percent of full-time faculty and approximately six percent of part-time faculty. Hispanic faculty constituted one percent of full-time faculty and one percent of part-time faculty. In all cases, women, blacks, and Hispanics appear to be underrepresented in the business faculty ranks of community colleges.

The underrepresentation in the enrollment and the faculty is recognized by the institutions. Extensive and intensive recruitment and retention efforts are being applied and must be continued.

Recommendation 18.-- Recommend community colleges and area vocational-technical centers continue their active recruiting of minorities as business students and as full-time and part-time faculty.

## Continuing Education

Employee training and education are important to economic growth. According to a Kettering Foundation report, employers spent an estimated $30 billion nationally in 1980, to provide employees with a broad spectrum of educational offerings. These expenditures were about half of all that was spent for traditional postsecondary education in 1980. They were for credit and noncredit courses and included degree programs, technical training, personal development, entry-level orientation, and tuition aid programs.

In Florida, business people see the need for

continuing education or supplemental instruction. Work is becoming more specialized, competition is more intense, and technology is rapidly changing. Employers interviewed by the Advisory Committee emphasized the need for employees to become more skilled. A Florida Trend 1988 report further accents the need by declaring that learning cannot stop when traditional education ends, and that business people must continually improve their knowledge and skills.

The Advisory Committee found that all the community colleges provide supplemental instruction. All area vocational-technical centers with business programs provide short-term training. But, neither educational system has formed a separate institutional center to coordinate this training to the extent of the Center for Economic Development at Florida Community College at Jacksonville.

Educational services through the Center for Economic Development are provided to businesses of all sizes. No business with an educational need is seen as too small or too large to be served. Credit courses and noncredit courses are conducted at the business location. Credit programs usually are planned for degree-seeking students. Some businesses have established tuition-reimbursement plans. Noncredit courses usually are planned in modules to serve particular needs. The

businesses pay the student fees.

The Division of Community Colleges fact books indicate that supplemental vocational instruction enrollment consistently is more that twice the postsecondary vocational and postsecondary adult vocational enrollment, and is increasing. It should continue to increase because of rapid technological change.

Noncredit continuing education courses are preferred because enrollment is simple. There are no course prerequisites and the curriculum can be designed to meet specific training needs.

Business employers want colleges to provide innovative ways to accelerate degree completion by motivated employees. Examples discussed with the Advisory Committee include credit for experiential learning, credit by exam, independent study, and credit for business related training such as the AIB (American Institute of Banking) programs. A current project with the Council for Adult and Experiential Learning (CAEL) should help meet this concern. The CAEL project involves intense self study by the institution to position itself for better relations with business, including improved response to business needs, and involves the training of institutional personnel to assess experiential learning.

When a business requests special training, it has

four important concerns:

1. Scheduling.-- Training should be scheduled promptly and taught efficiently.

2. Content.-- The instructor should have current knowledge of the field and an effective manner of presentation. Businesses prefer one-credit and noncredit courses to the three-credit courses offered in traditional programs. Eleven community colleges said their resources are insufficient to develop the customized training that businesses need.

3. Space.-- Training can take place at the business site or at the educational institution. Some institutions lack space on campus to accommodate businesses that request their services. Others have made special arrangements to cooperate with businesses that request training. For example, St. Petersburg Junior College has an attractive facility for this purpose.

4. Cost.-- Businesses commonly pay student fees for the special training they request. Cost is an important factor, and area vocational-technical center student fees are lower than community college student fees. Removing the student fee differential would allow the selection of training providers to be based on the training specifications.

Recommendation 19.-- Recommend the legislature implement the recommendation in 1987 Vocational Education Proviso Study for comparable vocational education fees in community colleges and school districts.

## Business and Industry Relations

### Overview

Opportunities exist for area vocational-technical centers and community colleges to work with business and industry. Area centers and community colleges can offer business and industry effective faculty, modern facilities, and appropriate curricular options. Business, in turn, provides employees as students at a time of declining traditional enrollments. Through the Vocational Inservice and Business Exchange Program and cooperative education experiences, faculty are able to learn more about technological changes and new skills needed by the work force.

Business and education must find mutually beneficial ways to cooperate in training Florida's workers and managers. Noneducational services, state training programs such as the Sunshine State Skills Program and the Industry Services Program, and economic development involvement are three means the Advisory Committee found to enhance business and industry relations.

### Noneducational Services

Beyond course work, the Advisory Committee addressed

the role of area vocational-technical centers and community colleges in providing technical services to the business community, and found that noneducational services, such as market surveys, legal research, and demographic surveys, have grown with the demands of the business community. Some at the regional hearings stated that noneducational service is not the proper role of a community college, that the only role of the college is teaching. Others argued that if noneducational services are not available to businesses from private marketing services, the Small Business Administration, or other sources, then the college must provide the services as a partner in community development. An example is the Business Center at Daytona Beach Community College. The Advisory Committee concluded that the institutions are dealing appropriately with their own questions about whether and how to offer noninstructional technical assistance to businesses.

State Partnerships

The Sunshine State Skills Program was designed to bring community colleges together with employers who have specific training needs for employees in new, expanding, or diversifying businesses in Florida. The Sunshine State Skills Program has had an overwhelmingly positive response from business and industry. Twenty-five

community colleges have formed partnerships with local businesses to develop training proposals. At the regional hearings, the Advisory Committee learned that more partnerships are needed and could be formed if additional funding were provided for the Sunshine State Skills Program.

The Industry Services Training Program was designed for the same purpose as the Sunshine State Skills Program, but is different in method. Area vocational-technical centers and community colleges have provided training facilities for the program. The Advisory Committee found total support for the concept, effectiveness, and workings of the Industry Services Training Program.

Recommendation 20.-- Recommend funding for the Industry Services Training Program, the Sunshine State Skills Program, and business institutes be increased.

Economic Development

The Master Plan for Florida Postsecondary Education calls for community colleges and area vocational-technical centers to play major roles in helping Florida attain its economic development goals. Information from the regional hearings and the survey reveals that community colleges actively help chambers of commerce recruit new industry. Most community colleges design training programs for business and industry,

provide a flow of entry-level employees, and provide retraining for laid-off and unemployed people. Area vocational-technical centers and community colleges are the primary resources in communities for upgrading job skills.

People interested in starting a business frequently need help to fully develop a business plan. Examples of structures to provide such help are the Small Business Development Center of Palm Beach Community College/Florida Atlantic University, the Beacon Council in Miami, and the small business incubator programs of Lake-Sumter Community College.

Despite these efforts, still more is needed. Emphasized at the regional hearings were that businesses need to know more about what resources for training are available, and educators need to understand more about economic development. Business people do not know exactly what an area vocational-technical center or community college can do for them.

Cooperation and communication among educational delivery agencies is important in economic development efforts. Accurate and timely information about educational offerings, the skill levels of the work force, the quality of life, etc. is needed by economic development agencies to attract new industry and to encourage existing industry to expand present facilities.

The Advisory Committee became convinced that as Florida's economy continues to grow, more business/education interaction will be needed. Five thousand economic development councils exist in the United States; 350 councils are active in Florida. Universities, community colleges, and public school systems vary in their degree of involvement with the economic development councils. The Advisory Committee believes the councils, private organizations, and educational institutions must develop stronger bonds in support of economic development.

Recommendation 21.-- Recommend local educational information centers with 911 type telephone numbers be established in areas where there are many providers of education to provide information about and refer people to business programs. The information centers should participate with The Education Clearinghouse for Economic Development (ACCESS) in the Division of Vocational, Adult and Community Education.

Recommendation 22.-- Recommend the State Board of Community Colleges and the State Board of Education take specific action to determine and communicate community college and area vocational-technical center capabilities in economic development through support of The Education Clearinghouse for Economic Development (ACCESS) and other means.

## SUMMARY

Business programs in Florida are facing new challenges. Rapid growth and change in business and industry demand an efficient and flexible educational delivery system. This review was statewide and question-oriented, designed to determine needs for future program direction and funding priorities.

The review dealt with marketing, general business, and small business management instructional programs, and covered program inventories, enrollment, completion rates, follow-up, articulation, curriculum, equipment, facilities, support activities, equity, continuing education, relations with business and industry, and faculty development. The findings resulted in twenty-two recommendations.

Several items should be highlighted. Both business and education benefit from cooperation and collaboration. The dynamic nature of business requires continuous and formal interaction among the various instructional delivery institutions. And, the traditional methods of delivering business instruction need to be reconsidered in light of the changing conditions and needs in business.

## RECOMMENDATIONS

These recommendations were developed in the chapter on findings, along with the supporting information. They are repeated here for easy reference.

Recommendation 1.-- Recommend the community colleges and area vocational-technical centers ensure that their procedures for recording enrollment follow current requirements for reporting instructional program affiliation to distinguish consistently between enrollment with the intent to complete job preparatory programs and enrollment for other personal objectives, so that program completion rates will be accurate.

Recommendation 2.-- Recommend the Articulation Coordinating Committee appoint a task force of representatives from the community colleges and universities to study the transfer of credit issues identified in this review, to study other identified barriers to improved articulation of business programs in the community colleges and universities, and to recommend how the barriers can be eliminated.

Recommendation 3.-- Recommend the community colleges ensure that their personnel who work with students who intend to transfer to the state universities

are thoroughly familiar with the university transfer manuals and SOLAR, and provide annual workshops for academic advisers to learn about legal issues, curriculum changes, and other policies.

Recommendation 4.-- Recommend the Division of Community Colleges continue tracking the performance of associate in science degree graduates in state university business programs and, if needed, conduct a study to understand the performance and the two plus two articulation models involved.

Recommendation 5.-- Recommend community colleges and universities increase Level II program review efforts to conduct local articulation meetings and other activities to ensure that articulation issues between specific institutions are resolved.

Recommendation 6.-- Recommend the community colleges and area vocational-technical centers develop formal agreements for the community colleges to recognize learning that occurs in the area vocational-technical centers and to provide for the smooth movement of students from the centers to the colleges.

Recommendation 7.-- Recommend the Division of Community Colleges establish a task force to study the future of the associate in science in business and recommend options to the colleges, which may include terminating the associate in science in business,

modernizing the program, and redesigning the curriculum to meet current demands of employers.

Recommendation 8.-- Recommend the community colleges, in keeping with the criteria of the Southern Association of Colleges and Schools, advise students of the need to be competent in basic skills in English and mathematics and, further, advise students to complete such requirements early in their programs so that they can take more specialized business English and mathematics courses later in their programs.

Recommendation 9.-- Recommend the community colleges and area vocational-technical centers participate fully in the development of the new curriculum frameworks and performance standards for job preparatory programs (AS and PSAV) to ensure that they provide the job entry knowledge, attitudes, and skills expected by employers. These skills should include appearance, punctuality, resume writing, and job interviewing.

Recommendation 10.-- Recommend the community colleges and area vocational-technical centers reexamine their instructional programs to determine the extent to which more flexible modes of instruction should be employed to improve the efficiency and effectiveness of instruction, including the use of cooperative education, the assessment of experience, teleconferencing, computer

simulation, case studies, and co-curricular programs.

Recommendation 11.-- Recommend community colleges and area vocational-technical centers examine the business representation on their business program advisory committees and ensure at least one upper-level business executive on each committee.

Recommendation 12.-- Recommend community colleges and area vocational-technical centers encourage business faculty to apply for business exchange and other faculty development opportunities. Leaves through the Vocational Inservice and Business Exchange Program should be as near six months as possible.

Recommendation 13.-- Recommend alternative means of certifying area vocational-technical center business teachers be explored, and recommend community colleges and area vocational-technical centers provide for seminars where full-time faculty help part-time faculty learn teaching skills.

Recommendation 14.-- Recommend the Division of Vocational, Adult and Community Education adjust its procedures for requesting proposals for funds to ensure adequate notice before proposal deadlines.

Recommendation 15.-- Recommend the State Board of Community Colleges and the Department of Education include in their legislative budget requests $5,264,462 for community colleges and $71,910 for area

vocational-technical centers to obtain up-to-date equipment and software to enable business instructional program standards and objectives to be met.

Recommendation 16.-- Recommend the community colleges adopt equipment replacement schedules for the equipment in computer science and data processing instructional programs.

Recommendation 17.-- Recommend the community colleges that house business instructional programs in facilities determined to be deficient by the vocational instructional program review of business programs conducted by the Division of Vocational, Adult and Community Education incorporate that determination in their planning for facilities construction, remodeling, and renovation.

Recommendation 18.-- Recommend community colleges and area vocational-technical centers continue their active recruiting of minorities as business students and as full-time and part-time faculty.

Recommendation 19.-- Recommend the legislature implement the recommendation in 1987 Vocational Education Proviso Study for comparable vocational education fees in community colleges and school districts.

Recommendation 20.-- Recommend funding for the Industry Services Training Program, the Sunshine State Skills Program, and business institutes be increased.

Recommendation 21.-- Recommend local educational information centers with 911 type telephone numbers be established in areas where there are many providers of education to provide information about and refer people to business programs. The information centers should participate with The Education Clearinghouse for Economic Development (ACCESS) in the Division of Vocational, Adult and Community Education.

Recommendation 22.-- Recommend the State Board of Community Colleges and the State Board of Education take specific action to determine and communicate community college and area vocational-technical center capabilities in economic development through support of The Education Clearinghouse for Economic Development (ACCESS) and other means.

## APPENDIX

### Needed Instructional Resources
### Business Programs

### Community Colleges

General Equipment

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 352 | Computer workstation w/chair | $ 400 | $ 140,800 |
| 762 | Posture chairs w/casters | 125 | 95,250 |
| 138 | Printer stands | 100 | 13,800 |
| 47 | Diskette files | 26 | 1,222 |
| 3 | Power surge protectors | 500 | 1,500 |
| 301 | Electronic calculators | 150 | 45,150 |
| 117 | Electronic typewriters | 800 | 93,600 |
| 335 | Accounting desks | 100 | 33,500 |
| 5 | Melamine boards | 100 | 500 |
| 240 | L-shaped desks | 150 | 36,000 |
| 185 | Computer desks | 100 | 18,500 |
| 10 | Machine transcriber w/earphones | 500 | 5,000 |
| 29 | Computer tables | 125 | 3,625 |
| 6 | Computer carts | 150 | 900 |
| 20 | Cassette recorders | 40 | 800 |
| 70 | Printer cables | 40 | 2,800 |

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 86 | Switch boxes | 100 | 8,600 |
| 4 | Add-on-work surfaces | 115 | 460 |
| 6 | Power directors (8200) | 160 | 960 |
| 4 | Multi station access units | 760 | 3,040 |
| 109 | Cable connectors | 30 | 3,270 |
| | | | $ 509,277 |

Specialized Equipment

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 698 | Microcomputers | $ 2,000 | $1,396,000 |
| 416 | Printers | 600 | 249,600 |
| 18 | Modems | 300 | 5,400 |
| 3 | Telecommunication system | 3,000 | 9,000 |
| 3 | Compact disk/interactive | 1,000 | 3,000 |
| 22 | Mouse system | 200 | 4,400 |
| 9 | Plotters | 500 | 4,500 |
| 70 | Network system | 10,000 | 700,000 |
| 1 | Network computer system w/furniture | 150,000 | 150,000 |
| 21 | Monitor projects | 500 | 10,500 |
| 2 | VCR system | 1,000 | 2,000 |
| 48 | Laser printer | 2,000 | 96,000 |
| 53 | Portable computers | 3,000 | 159,000 |
| 62 | Computer terminals | 800 | 49,600 |
| 69 | Hard disk drives | 400 | 27,600 |

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 1 | Voice synthesizer for handicapped | 2,500 | 2,500 |
| 316 | Microcomputer w/color monitor | 2,500 | 790,000 |
| 25 | Portable printers | 500 | 12,500 |
| 16 | Computer projection image system | 1,500 | 24,000 |
| 16 | Floppy disk drive | 60 | 960 |
| 34 | Display terminals | 1,075 | 36,550 |
| 2 | Compilers | 5,200 | 10,400 |
| 66 | Memory expansion | 500 | 33,000 |
| 93 | Surge protectors | 25 | 2,325 |
| 1 | Plotter | 500 | 500 |
| 7 | Text & graphic scanner | 1,500 | 10,500 |
| 18 | Graphic adapter cards | 175 | 3,150 |
| 70 | Parallel printer cards | 60 | 4,200 |
| 1 | Desk top publishing system | 6,000 | 6,000 |
| 2 | Postal programmable calculators | 3,000 | 6,000 |
| 1 | MOS system computer w/scales | 15,000 | 15,000 |
| 1 | Micro computer system w/peripheral equipment | 60,000 | 60,000 |
| | | | $3,884,185 |

Specialized Resources Software

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 1612 | Pre-programmed applications | $ 500 | $ 806,000 |
| 15 | Language compilers | 3,000 | 45,000 |
| 2 sets | Software for networking system | 10,000 | 20,000 |
| | | | $ 871,000 |

Area Vocational-Technical Centers

General Equipment

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 6 | Electric calculators | $ 150 | $ 900 |
| 12 | Computer workstation w/chair | 400 | 4,800 |
| 8 | Printer stands | 100 | 800 |
| 30 | Posture chairs w/casters | 125 | 3,750 |
| 10 | Diskette files | 26 | 260 |
| | | | $ 10,510 |

Specialized Equipment

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 1 | Printer | $ 600 | $ 600 |
| 14 | Microcomputers | 2,000 | 28,000 |
| 1 | System 36 Fortran IV | 2,800 | 2,800 |
| 1 | Color graph PC | 2,000 | 2,000 |
| 14 | Hard disk drive | 500 | 7,000 |
| 1 | Color graphic printer | 1,500 | 1,500 |
| | | | $ 55,400 |

Specialized Resources Software

| Quantity | Item | Unit Cost | Total Cost |
|---|---|---|---|
| 12 | Pre-packaged applications (i.e., Cobol, Fortran, Spreadsheet, etc.) | $ 500 | $ 6,000 |



ERIC Clearinghouse for Junior Colleges